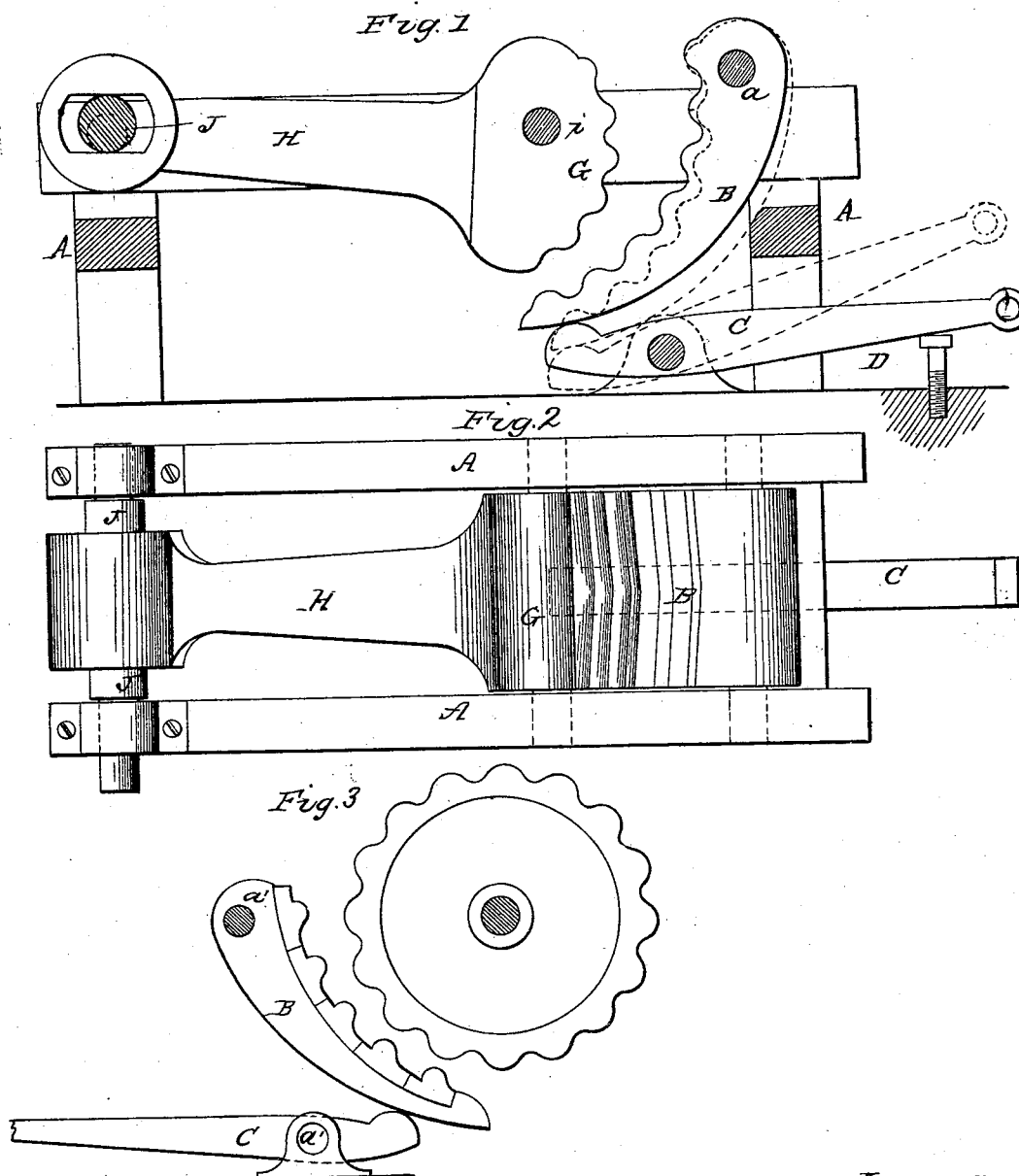


S. F. HODGE.

Rock Crusher.

No. 48,813.

Patented July 18, 1865.



Witnesses
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UNITED STATES PATENT OFFICE.

SAMUEL F. HODGE, OF DETROIT, MICHIGAN.

IMPROVEMENT IN ROCK-CRUSHERS.

Specification forming part of Letters Patent No. 48,813, dated July 18, 1865.

To all whom it may concern:

Be it known that I, SAMUEL F. HODGE, of Detroit, in the county of Wayne and State of Michigan, have invented a new and Improved Rock-Crusher; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical longitudinal section of my improved machine. Fig. 2 is a top view of the machine. Fig. 3 shows a cylindrical rotating crusher with a vibratory jaw.

Similar letters of reference indicate corresponding parts in the several figures.

The object of my invention is to provide for allowing one of the jaws of a rock-crusher to yield in the event of a substance getting between the jaws which would cause one or the other of them to break; also, to provide for adjusting the jaws so that they will crush the rock finer or coarser, as occasion requires.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings, A represents the frame of the machine, and B a concave jaw, which is hinged or pivoted to the frame at *a*. This jaw is corrugated or roughened on its upper surface, and the corrugations may incline toward the middle thereof, so as to form a double concave surface; or these corrugations may be arranged in any other suitable manner. The lower end of this pivoted jaw is sustained upon the short arm of a loaded lever, C, which has its fulcrum at *a'*, as shown in Fig. 1. The long arm of this lever is sustained upon an adjustable support, D, by adjusting which the free end of the jaw B can be elevated or depressed more or less, as may be required, for a purpose which will be presently explained. On this long arm of the lever C a weight should be suspended, which may be increased or diminished either by moving it toward or from the fulcrum *a'*, or otherwise.

In conjunction with the pivoted jaw B another pivoted jaw, G, is employed, which is formed on the end of a lever, H, that is pivoted in a suitable manner at *i* to the frame A.

The surface of the jaw G may be corrugated in a manner corresponding to the surface of the jaw B, and this surface should be so formed that the two jaws will form a kind of hopper for the reception between them of the rock which is to be crushed. The hopper is gradu-

ally contracted toward its discharge-opening, which necessarily requires that the rock should be crushed or broken before it can escape from the hopper.

The long arm of the lever H has a slotted opening transversely through it, through which passes an eccentric-shaft, J, that has its bearings on the frame A. On one end of this shaft J a driving-wheel or other contrivance may be applied for rotating it, and thus giving a vibrating movement to the enlarged head or breaking-jaw G, which causes this jaw to operate with a rubbing, and at the same time a pressing or crushing, action upon the pieces of rock which are introduced into the hopper formed by the bringing together of the two jaws, as above described. During the operation of breaking rock between said jaws, if from a substance harder than the rock, or if from any other cause, the jaw B would be liable to break, the weight on the loaded lever C will rise and allow the jaw B to yield, after which this jaw will return automatically to its former position.

It will be seen by reference to Fig. 1 that the long arm of the lever C is supported upon the adjustable stand D, and that the discharge-opening between the two jaws B and G can be increased or diminished, according to the fineness which it may be desired to break the rock. It will also be seen that the jaw B will always maintain the position in which it may be adjusted, whatever may be the amount of weight on the loaded arm, unless, as before stated, the resistance to be overcome to crush a substance is greater than the weight on the arm of the lever.

I do not confine my invention to any particular form of breaking-jaw, nor to the use of the lever H and eccentric for operating the movable or crushing jaw G, as a variety of forms may be adopted, such, for instance, as that represented in Fig. 3, where it will be seen that I employ a rotating cylinder having a roughened or corrugated surface.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The lever and adjustable bed, in combination with the crusher, substantially as and for the purpose set forth.

2. A stone or rock breaking machine, with a yielding jaw, B, in combination with a loaded lever, substantially as described.

Witnesses: SAML. F. HODGE.
THOS. S. CHRISTIE,
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